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First Named Inventor: **SHEELY, JEFFREY D.**
Application No.: **10/024,311** Group Art Unit: **1771**
Filed: **December 17, 2001** Examiner: **Ula C. Ruddock**
Title: **TRANSPARENT REINFORCED TAPE**

BRIEF ON APPEAL

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
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<u>Aug 30, 2004</u> Date	<u>Susan P. Gumatz</u> Signed by: Susan P. Gumatz

Dear Sir:

This is an appeal from the Final Rejection mailed March 31, 2004. This Brief on Appeal is being submitted in triplicate. The fee required under 37 CFR § 1.17(c) for the appeal should be charged to Deposit Account No. 13-3723.

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1. Real Party in Interest

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

2. Related Appeals and Interferences

Appellants are unaware of any related appeals or interferences. An International Preliminary Examination Report has been received in the corresponding PCT application PCT/US02/35310 which found Novelty, Inventive step, and Industrial applicability of the same claims presented in the subject application (a copy of that report was submitted in the subject application with our "Response" dated January 14, 2004).

3. Status of Claims

Claims 1 through 12, reproduced in the Appendix to this brief, are all of the claims now pending in this application, are all finally rejected under 35 U.S.C. 102(b) or 35 U.S.C. 103(a), and are all on appeal.

4. Status of Amendments

No amendment has been filed in this application.

5. Summary of Invention

Well known in the art are reinforced adhesive coated tapes including those called duct tapes which comprise a backing layer of polymeric material, a reinforcing scrim along a major surface of the backing layer, and a layer of adhesive along that major surface of the backing layer that covers the reinforcing scrim. The scrim provides reinforcing for the backing layer, and can be of non-woven fibers, or can be a rectangular grid formed of spaced fibers or bundles of fibers extending longitudinally along the backing layer interwoven with spaced fibers or bundles of fibers extending transverse of the backing layer. Such a rectangular grid restricts manual tearing of the tape to tears in either the transverse or the longitudinal direction, which is useful so that a rectangular portion can be torn out of the tape. Typically the adhesive for such reinforced tapes is a visually apparent pressure sensitive adhesive and is applied in a heavy layer so that it will conform and adhere to substrates of many different materials having many different surface textures. Thus such reinforced tapes have found many more uses than sealing the joints in ventilating ducts. Such reinforced tapes are available with backing layers of many different colors so that, for example, a tape of a color at least similar to that of the substrate on which it is to be applied can be used to help retain an appearance for the taped substrate that is as pleasing as possible, or a tape of a contrasting color can be applied to make the tape stand out. (See spc., pg. 1, lns. 13-30)

Also well known are adhesive coated tapes of a type called box sealing tapes that typically have a polymeric backing layer and a layer of pressure sensitive adhesive along one major surface of that backing layer, but which do not include a reinforcing scrim of the type described above. Both the backing and adhesive of such tapes have been made quite visually transparent which helps to retain an appearance for a substrate to which the tapes are applied that is as pleasing as possible; however, many of their backing layers either do not provide the strength that is provided by backing layers with reinforcing scrims, or, if they have such strength, will stretch before they break and can not be accurately torn by hand. (See spc., pg. 2, lns. 8-16)

The present invention provides a tape 10 including a visually transparent polymeric backing layer 12 and a visually transparent layer 24 of pressure sensitive adhesive that also includes a reinforcing scrim 18. The reinforcing scrim 18 is visually apparent in the tape 10

before the tape 10 is applied to assure a user of the type and strength of the tape 10, but becomes significantly less visually apparent (see Fig. 3 of the drawing) when the transparent reinforced tape 10 is applied to a substrate to retain 28 an appearance for that substrate 28 which is as pleasing as possible after the tape 10 is applied. (See spec., pg. 2, lns. 26-32 and Figs. 1, 2, and 3 of the drawing)

The reinforcing scrim 18 in the tape 10 according to the present invention is formed of fibers 20 that preferably are of visually transparent material and is positioned along a major surface 16 of the backing layer 12. The layer 24 of transparent adhesive extends along that major surface 16 of the backing layer 12 and covers, but does not totally wet all of the surfaces of the fibers 20 forming the reinforcing scrim 18 (see Fig. 2 of the drawing) so that the non-wetted surfaces of the fibers 20 are visible, making the reinforcing scrim 18 at least partially visible along the backing layer 12. The material from which the fibers 20 and the transparent adhesive in the layer 24 are made have similar indexes of refraction. When the layer 24 of adhesive is pressed against a substrate 28 through the backing layer 12 (see Fig. 3 of the drawing), the adhesive will more totally wet the surfaces of the fibers 20 in the reinforcing scrim 18. This will cause the scrim 18 to become significantly less visible or visually apparent than before the reinforced tape 10 was pressed against and adhered to the substrate 28, thereby significantly reducing the visibility of the length of reinforced tape 10 on the substrate 28. (Claim 1, spec., pg. 3, lns. 1-13 and pg. 6, ln 11 thru page 8, ln 3, and Figs. 1, 2, and 3 of the drawing)

The material from which the fibers 20 in the reinforcing scrim 18 are made should have an index of refraction similar to that of the adhesive in the layer 24 (i.e., as claimed in claim 6 the index of refraction of the fibers 20 should be within plus or minus 0.2 of the index of refraction of the adhesive). As examples, the materials (having their approximate indexes of refraction or range of indexes of refraction shown in parentheses) fiberglass (1.52), acetate (1.479), acrylic (1.517), modacrylics (1.54), rayon (1.52 - 1.55), cotton (1.53 - 1.58), polyethylene (1.57), polypropylene (1.523), nylon (1.52 - 1.575), polyester (1.53 - 1.70), polyamine (1.67 - 1.8), and Kevlar (1.64) have been, for example, found suitable for use in making reinforcing scrim 18 used with the pressure sensitive adhesives having an index of refraction of about 1.47 that are described in U.S. Patents Numbers 5,804,610 and 5,902,654, or any of the pressure sensitive

adhesives having an index of refraction of about 1.51 that are commercially designated “Kraton” (trade mark) and are commercially available from Kraton Polymers U.S. LLC, Houston, Texas. (See spc., pg. 4, lns. 1-14, Claim 6)

The reinforcing scrim 18 in the reinforced tape 10 according to the present invention should be easily seen in the tape before it is applied to a substrate, and should become significantly less visible in the tape 10 when the tape 10 is adhered to a substrate 28, leaving a tape 10 on the substrate 28 in which the scrim 18 is not highly visible. Based on the test procedures described in the specification from page 8, ln 4 to page 11, ln 10 with reference to Fig. 4 of the drawing, the percentage of the light reflected as diffuse light by the tape 10 before it is adhered to a substrate 28 should be at least 15 percent to provide good visibility of the scrim 18, (that percentage of the light reflected as diffuse light being more acceptable when it is at least 18 percent, and being preferred when it is at least 20 percent). The percentage of the light reflected as diffuse light by the tape 10 after it is adhered to a substrate should be less than 15 percent so that the scrim 18 is not easily apparent in the applied tape 10, (that percentage of the light reflected as diffuse light being more acceptable when it is less than 10 percent, and being preferred when it is less than 5 percent). The reduction in the percentage of the light reflected as diffuse light by the tape 10 when it is adhered to a substrate 28 compared to when it is not adhered, which is mostly caused by the reduction in visibility of the scrim 18, should be at least 10 percent, and is more acceptable when it is at least 40 or 60 percent (with even higher percent reductions being preferred) so that the scrim 18 almost entirely disappears and it is difficult to see the tape 10 on the substrate 28. (See spc., pg. 5, lns. 1-21, and Claims 11 and 12)

6. Concise Statement of the Issues

Whether claims 1, and 6-12 are unpatentable under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Serra et al. (US 5,407,726).

Whether claims 2-5 are unpatentable under 35 U.S.C. 103(a) as obvious over Serra et al. US 5,407,726) in View of Perez et al. (US 6,331,343).

7. Grouping of Claims

Only for purposes of this appeal and to simplify its issues, and not to be taken as any admission or waiver with respect to the validity, enforceability, or independent patentability of the claims, the following groups of claims may be considered to be related with respect to the issues on this Appeal:

Group 1: Claims 1, 2, 3, 4, 5, 8, 9, and 10

Group 2: Claim 6

Group 3: Claim 11

Group 4: Claim 12

8. Arguments of Appellants

The Examiner has rejected claims 1 and 6-12 under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Serra et al. (US 5,407,726). The Examiner has stated "Serra et al. disclose adhesive tapes comprising polymeric backing layer and a pressure sensitive adhesive layer (abstract). A reinforcing scrim may be used in the adhesive tape. The backing layer comprises polyethylene (col. 2, lns. 26-32), which is the same type of backing layer used by Applicant (page 3, line 19 of the present specification). A nonwoven scrim may be incorporated into the tape to enhance tearability and strength and can comprise either polyester or cotton (col. 3, lns. 19-47). A portion of the adhesive layer will be present in the interstices of the scrim (col. 3, lns. 27-29)."

The Examiner suggests that "Serra et al. disclose the claimed invention except for the teaching that the index of refraction of the material of the fibers is within plus or minus 0.2 of the index of refraction of the adhesive and the percentage of light reflected from the tape as diffuse light was at least 15% before the tape was adhered to a substrate and was reduced by at least 10% or 60% by adhering the tape to the substrate."

The Examiner further suggests that "Although Serra et al. do not explicitly teach the claimed index refraction of the fibers and adhesive or the percentage of reflected light before and after adhering the tape to a substrate, it is reasonable to presume that these properties is inherent to the Serra et al. invention. Support for said presumption is found in the use of like materials (i.e.,

polyester or cotton nonwoven scrims, polyethylene backing layers, and adhesive layers). The burden is upon Applicant to provide otherwise. *In re Fitzgerald*, 205 USPQ 594.”

The holding in *In re Fitzgerald*, 205 USPQ 594 (*Fitzgerald*) is not applicable because the claims in the subject application are not product by process claims. *Fitzgerald* related to product by process claims, and it was stated that the “Rejection under 35 U.S.C. 103 is indicated where prior art discloses product that appears to be either identical with or only slightly different from product claimed in product-by-process claim: Patent Office can require applicant to prove that prior art products do not necessarily or inherently possess characteristics of his claimed product: whether rejection is based on “inherency” under 35 U.S.C. 102, on “prima facie obviousness” under 35 U.S.C. 103 jointly or alternatively, burden of proof is same: Patent Office that has reason to believe that functional limitation asserted to be critical for establishing novelty in claimed subject matter may, in fact, be inherent characteristic of prior art possesses authority to require applicant to prove that subject matter shown to be in prior art does not possess characteristic relied on.(emphasis added)” Applicant was required to prove that under normal operating conditions a process described in a prior art “Barnes” reference did not produce a degree of crystallization shrinkage claimed by *Fitzgerald*.

The claims in the subject application are not product by process claims. Rather they are article claims that recite a combination of structural elements with features that cooperate to provide a novel reinforced tape. There is no specific process described in *Serra et al.* that applicant could test to determine if *Serra et al.* had made a tape with the combination of claimed structural elements.

In the reinforced tape according to the present invention as claimed in claim 1, both the backing layer and the layer of adhesive are visually transparent, only portions of the reinforcing scrim are wetted by the adhesive so that the reinforcing scrim is visible along the backing layer, and the polymeric fibers and the transparent adhesive have similar indexes of refraction so that upon applying force to the backing to press the layer of adhesive against a substrate the layer of adhesive will wet the fibers, causing the reinforcing scrim to become significantly less visible than before the reinforced tape was adhered to the substrate.

Applicant has no burden as a result of *In re Fitzgerald* of proving that these features in article claims are not inherent in the structures described by *Serra et al.*, but must only establish that

the claimed combination of features is not anticipated by or made obvious by the description in Serra et al. under 35 U.S.C. 102 or 35 U.S.C. 103.

Serra et al. describes a reinforced tape that, like the tape according to the present invention as claimed in claim 1, comprises a backing layer of polymeric material, a reinforcing scrim formed of fibers, and a layer of adhesive along a major surface of the backing layer covering the reinforcing scrim.

Serra et al. state that the backing layer for their tape is of a chlorinated polymeric material (col. 2, lns. 16-17) that preferably consists of chlorine in chlorinated polyethylene and polyethylene in a chlorinated polyethylene and polyethylene blend (col. 2, lns. 27-32), and can further include a heat stabilizer such as barium-cadmium, lead or others, antioxidants, and colorants such as carbon black, etc. (col. 2, lns. 32-40); and that the layer of adhesive for their tape can be of acrylics and rubber-based adhesive of per se known description, e.g., a natural or synthetic rubber elastomer. A typical adhesive of this description may include a blend of natural rubber, tackifier, and other reagents performing specific desired functions (col. 2, lns. 41-46). While these lists of possible materials for the backing layer and layer of adhesive of the tape described by Serra et al. include some materials from which those layers could be made to make those layers visually transparent, they also include materials that when included in a backing layer or layer of adhesive would normally not make those layers visually transparent (e.g., backing layers including lead or carbon black, and adhesive layers comprising natural rubber). Serra et al. do not teach or suggest that both, or even either one of their backing layer and their layer of adhesive should be visually transparent.

Serra et al. describe applying the layer of the adhesive to the scrim and backing layer by “known coating techniques, e.g., calendaring, casting, or extrusion” (col. 3, lns. 65-68) without any specificity as to how thoroughly the adhesive should be pressed into engagement with the scrim and backing except to state (as noted by the Examiner) that “A portion of the adhesive layer will be present in the interstices of the scrim” (col. 3, lns. 27-29). This quotation may suggest that all rather than only a portion of the reinforcing scrim will be wetted by the adhesive when the tape is made. In any event, Serra et al. provide no teaching to provide a tape in which only portions of a reinforcing scrim are wetted by an adhesive covering the reinforcing scrim. We do not understand the Examiner’s response to this argument that “This argument is not persuasive because if the

adhesive is present at the interstices of the scrim only then a portion of the scrim is being wetted by the adhesive” or that “the Examiner is equating Serra’s disclosure that the adhesive is present at the interstices of the scrim to the disclosure by Applicant that only portions of the scrim are wetted by an adhesive.” The statement in Serra et al. that “A portion of the adhesive layer will be present in the interstices of the scrim” does not define how much of the scrim is wetted by the adhesive, and does not teach or make obvious the condition claimed in claim 1 that only portions of the reinforcing scrim are wetted by the adhesive so that the reinforcing scrim is visible along the backing layer.

Serra et al. state that their scrim can be formed of synthetic fibers such as polyester or of polyester and cotton (col. 3, lns. 19-55). While there may be adhesives among those suggested by Serra et al that have indexes of refraction that are similar to such fibers, there may also be adhesives that do not.

Thus, the structural features of the reinforced tape claimed in claim 1 (i.e., a tape (1) in which both the backing layer and the layer of adhesive are visually transparent, (2) in which only portions of the reinforcing scrim are wetted by the adhesive so that the reinforcing scrim is visible along the backing layer, and (3) in which the polymeric fibers and the transparent adhesive have similar indexes of refraction so that upon applying force to the backing to press the layer of adhesive against a substrate the layer of adhesive will wet the fibers, causing the reinforcing scrim to become significantly less visible than before the reinforced tape was adhered to the substrate) are certainly not necessarily present in the tape described by Serra et al. There is no teaching or suggestion in Serra et al. that would anticipate or make this combination obvious.

Also, the tape structure claimed in the subject application is not inherent in the structures described by Serra et al. under the guide lines set forth in the M.P.E.P. in section 2112, page 51, under the heading “EXAMINER MUST PROVIDE RATIONALE OR EVIDENCE TENDING TO SHOW INHERENCY” wherein it states:

“The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based

on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).”

Claim 1 should be allowed.

Claims 2 through 12 are dependent on claim 1 and thus should be allowed for all of the reasons given above with respect to claim 1. Additionally, claims 2 through 12 recite further structural features that are not taught or suggested in the claimed combination by Serra et al. or by a combination of Serra et al. and Perez et al. For example:

Claim 6 recites that the index of refraction of the material of the fibers is within plus or minus 0.2 of the index of refraction of the adhesive; this preferred relationship between those indexes of refraction is not even remotely suggested by Serra et al;

Claim 11 recites that when tested in accordance with the test described in this application, the percentage of light reflected from the claimed tape as diffuse light was at least 15% before the tape was adhered to a substrate, and was reduced by at least 10% by adhering the tape to a substrate, and Claim 12 recites that when tested in accordance with the test described in this application, the percentage of light reflected from the tape as diffuse light was at least 15 % before the tape was adhered to a substrate, and was reduced by at least 60% by adhering the tape to a substrate. These relationships between the percentages of light reflected from the tape before and after it was adhered to a substrate are also not even remotely suggested by Serra et al.

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting the claims in this application under 35 U.S.C. 102(b) or 35 U.S.C. 103(a). Please reverse the Examiner on all counts.

Respectfully submitted,

August 30, 2004
Date

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APPENDIX

CLAIMS ON APPEAL

1. (original) A length of reinforced tape comprising:
 - an elongate visually transparent backing layer of polymeric material having opposite longitudinally extending edges and opposite first and second major surfaces;
 - a reinforcing scrim along the second major surface of said backing layer, said reinforcing scrim being formed of fibers; and
 - a layer of visually transparent adhesive along said second major surface of said backing layer and covering said reinforcing scrim with only portions of said reinforcing scrim being wetted by the adhesive so that the reinforcing scrim is visible along the backing layer;said polymeric fibers and said transparent adhesive having similar indexes of refraction so that upon applying force to the backing to press the layer of adhesive against a substrate the layer of adhesive will wet the fibers, causing the reinforcing scrim to become significantly less visible than before the reinforced tape was adhered to the substrate.
2. (original) A length of reinforced tape according to claim 1 wherein said reinforcing scrim is formed of bundles of said fibers extending longitudinally along said backing layer and being uniformly transversely spaced between the longitudinal edges of said backing layer, and bundles of said fibers extending transverse of said backing layer and being uniformly spaced longitudinally along said backing layer.
3. (original) A length of reinforced tape according to claim 2 where the total of the individual deniers of the fibers in said bundles of fibers is less than about 300.
4. (original) A length of reinforced tape according to claim 2 wherein the fibers are loosely laid in said bundles of fibers.

5. (original) A length of reinforced tape according to claim 2 wherein said reinforced tape can be torn by hand both longitudinally along said backing layer and transverse of said backing layer.
6. (original) A length of reinforced tape according to claim 1 where the index of refraction of the material of the fibers is within plus or minus 0.2 of the index of refraction of the adhesive.
7. (original) A length of reinforced tape according to claim 1 where the material of the fibers is selected from the materials consisting of fiberglass, acetate, acrylic, modacrylics, rayon, cotton, polyethylene, polypropylene, nylon, polyester, polyamine, and Kevlar.
8. (original) A length of reinforced tape according to claim 1 wherein some of said fibers in said reinforcing scrim extend longitudinally along said backing layer and are uniformly transversely spaced between the longitudinal edges of said backing layer, and some of said fibers in said reinforcing scrim extend transverse of said backing and are uniformly spaced longitudinally along said backing layer.
9. (original) A length of reinforced tape according to claim 8 wherein said fibers in said reinforcing scrim extending longitudinally along said backing layer and said fibers in said reinforcing scrim extending transverse of said backing are fused together where they cross each other.
10. (original) A length of reinforced tape according to claim 1 wherein said reinforcing scrim is a non-woven layer of said fibers.
11. (original) A length of reinforced tape according to claim 1 wherein, when tested in accordance with the test described in this application, the percentage of light reflected from the tape as diffuse light was at least 15 % before the tape was adhered to a substrate, and was reduced by at least 10% by adhering the tape to a substrate.

12. (original) A length of reinforced tape according to claim 1 wherein, when tested in accordance with the test described in this application, the percentage of light reflected from the tape as diffuse light was at least 15 % before the tape was adhered to a substrate, and was reduced by at least 60% by adhering the tape to a substrate.